

05-GF-113  
(530)

PUBLIC SERVICE

13 P 12:07

RECD

January 8, 2003

Mr. Jim Loock, Chief Electric Engineer  
Public Service Commission  
610 N. Whitney Way  
P.O. Box 7854  
Madison, WI 53707-7854

RE: In the Matter of Filing Reporting Requirements for Appropriate Inspection and Maintenance, PSC Rule 113.0607(6)

Dear Mr. Loock:

Enclosed for filing are 3 copies of Black Earth Utility's report to the commission, submitted every two years, showing compliance with its Preventative Maintenance Plan.

Very truly yours,

*Robert A. Harper*  
Robert A. Harper  
Electrical Superintendent  
Village of Black Earth

Enclosures

PUBLIC SERVICE  
COMMISSION

1/13 P 12:07

RECEIVED

January 8, 2003

Jim Loock, Chief Electric Engineer  
Public Service Commission  
610 N. Whitney Way  
P.O. Box 7854  
Madison, WI 53707-7854

RE: In the Matter of Filing Plans for Appropriate Inspection and Maintenance, PSC Rule 113.0607.

Dear Mr. Loock:

Enclosed for filing are 3 copies of Black Earth Utility's Preventative Maintenance Plan detailing inspection maintenance schedules, condition rating criteria, corrective action schedules, record keeping procedures and report filing schedules as documented in this rule.

Very truly yours,

*Robert A. Harper*  
Robert A. Harper  
Electrical Superintendent  
Village of Black Earth

Enclosures

etc  
PSC

## SUMMARY

U.S. PUBLIC SERVICE -9-03

We have had a quite aggressive approach to making repairs in both Black Earth and Mazomanie because the systems are in bad shape. They are considerably better since I came on board 2 1/2 years ago. It is essential that the old underground feeders around the villages be replaced. I believe this will be done in the near future. We have been proceeding in Mazomanie with this main feeder replacement.

I'm sure I have sent too much documentation in some areas and not enough in other areas.

We have a lot of politics to deal with which makes getting the job done more difficult. It seems like we always have new board members. We have a better work force than what was here when I was hired. The experience level is still low, but improving every day.

*Robert A Harper*  
Robert A Harper

RECEIVED  
Electric Division

# **PREVENTATIVE MAINTENANCE PLAN**

113 P 12:01

~~REVED~~ **Village of Black Earth**

**FILING DEADLINE**

**FEBRUARY 1, 2001**

December 19, 2000

Robert A. Harper

714 Blue Mounds Street

Black Earth, WI 53515

(608)767-2561

This plan was prepared by the MEUW work group for PSC Rule 113.0607 for use by the 82 municipal electric utilities in Wisconsin and endorsed by PSC staff as meeting the requirements of Rule PSC 113.0607.

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## **I. Preventative Maintenance Plan**

The PSC 113.0607 rule reads;

Appropriate inspection and maintenance: system reliability.

(1) PREVENTATIVE MAINTENANCE PLAN. Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation<sup>1</sup>, and substation facilities.

(2) CONTENTS OF THE PLAN. (a) *Performance standard.* The Preventative Maintenance Plan shall be designed to ensure high quality, safe, and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.

1 *PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 MW.*

## **II. Inspection Schedule and Methods:**

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased municipal loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

EVERY

SCHEDULE:	MONTHLY	ANNUAL	5 YEARS
Transmission ( $\geq 69\text{Kv}$ and above)			
Substations	X	X	
Distribution (OH & UG)			X

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Five criteria groups will be used to complete the inspection of all facilities.

1. IR – infrared thermography used to find poor electrical connections and/or oil flow problems in equipment.
2. RFI - Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.
3. SI – structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.
4. Clearance – refers to proper spacing of conductors from objects, trees and other utility cables.
5. EC – equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

### **III. Condition Rating Criteria:**

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

- 0) Good condition
- 1) Good condition but aging
- 2) Non-critical maintenance required – normally repair within 12 months
- 3) Priority maintenance required – normally repair within 90 days
- 4) Urgent maintenance required – report immediately to the utility and repair normally within 1 week

### **IV. Corrective Action Schedule**

The rating criteria as listed above determine the corrective action schedule.

### **V. Record Keeping**

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

### **VI. Reporting Requirements**

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description of maintenance achieved within the scheduled time allowance.

**GOALS ESTABLISHED AND ACHIEVED**  
**1-9-03**

It was the goal of Black Earth to complete the monthly substation inspection and inspect at least 20% of the distribution line. We expected to complete all scheduled maintenance resulting from these inspections. The inspection goals were completed. I would estimate that we inspected 25% of the system out of our only substation. Urgent maintenance issues were repaired right away or within days and other issues were repaired as they were scheduled. We are working into a four-year trimming rotation. We also trim areas as needed, but as we work into the four-year rotation these areas will be minimized. We just completed a tree clearing and trimming contract that has really helped.

It became my goal to clean up several temporary jobs not completed. We completed the jobs that were done in a temporary fashion.



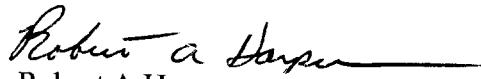
Robert A Harper

**FACILITY CONDITION**  
**1-8-03**

During the past two years 25% of the distribution lines were inspected and substation inspections were completed. The critical maintenance was repaired before they caused customer outages. Storm related outages have been reduced considerably because of our trimming and the tree-clearing contract.

We moved three rural lines to alleviate tree problems. In the process of moving these lines we did eliminate some 6A copperweld wire. We have worked on our fusing coordination to reduce outages. I plan to replace the old underground main feeder cable around the village. We will contract for directional boring and do the remaining work in-house. The only thing holding us up is board approval.

We contracted Alliant Energy to do a substation inspection report. The report produced a hot bushing, needed regulator maintenance and an overloaded substation transformer. We had two scheduled outages to change the bad bushing and to change out the regulators. There just wasn't adequate space to change the regulators out with the substation energized. We also had to de-energize the transformer and drain some oil to change the bushing. We have since added fans to correct the over load condition, but a new substation will have to be built in the near future.

  
\_\_\_\_\_  
Robert A Harper

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-12-02 Inspected by RCB Sub  Ckt

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-10-02 Inspected by RA Sub \_\_\_\_\_ Ckt \_\_\_\_\_

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 4-9-02 Inspected by RAB Sub \_\_\_\_\_

三

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-9-02 Inspected by RAB Sub \_\_\_\_\_ Ckt \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	CLEARANCE	COMMENTS
B & County LOCATION 1st pole east of Loc 4744				
	○ ○ ○	Pole Condition/Leaning		
	○ ○ ○	Crossarm Condition		
	○ ○ ○	Insulators, DE, Pin		
	○ ○ ○	Soil Conditions		
	○ ○ ○	Pole Steps		
	○ ○ ○	Grounds Intact, Molding		
	○ ○ ○	Down Guys and Markers		
	○ ○ ○	Guy Bond, Insulator		
	○ ○ ○	Signs, Loc#, Warning		
	○ ○ ○	Customer Equipment		
	○ ○ ○	Conductor and Ties		
	○ ○ ○	U'Guard/Conduit Cond		
	○ ○ ○	RFI Check		
	○ ○ ○	Transformer		
	○ ○ ○	Switches		
	○ ○ ○	Cutouts		
	○ ○ ○	Arresters		
	○ ○ ○	Terminators		
	○ ○ ○	Street Light		
	○ ○ ○	Tree Trimming		
	○ ○ ○	Ground Line Clearances		
	○ ○ ○	Building Clearances		
	○ ○ ○	Streets, Roads, Alleys		
	○ ○ ○	Communication Clearance		
		under Tree Contract		
		Excessive Right-of-Way		
		Line in Right-of-Way		
		Completed by [Signature]	Date Item Corrected	
			Contract	
			Corrected By	

## OVERHEAD DISTRIBUTION INSPECTION FORM

Dato 4-8-02 Inspected by JRP Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-8-02 Inspected by SCPH Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-5-01 Inspected by J.D.H. Sub  Ckt

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-5-02

Inspected by BRW Sut

C  
K

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-5-02 Inspected by RATH Sub \_\_\_\_\_ Ckt \_\_\_\_\_

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 4-5-02 Inspected by JRA Sub \_\_\_\_\_ Ckt \_\_\_\_\_

# OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-3-02 Inspected by JMP Sub \_\_\_\_\_ Ckt \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	CLEARANCE	COMMENTS	
LOCATION				Rating Criteria	
Tap Point to Loc 10756	0 0 0 0 0 0	0 (CSP)	0 0 0 0 0 0	0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required	Date Item Corrected
Transformer at Loc 10756	0 0 0 0 0 0	0 (CSP)	0 0 0 0 0 0	No Tree Risk Item	Corrected By
Tap to Location # 10687	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	Telephone Booster Pole	
Transformer at Loc 10687	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	Recently Cut Out Along Drive Way	
Transformer at Loc 10687	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	No Tree Risk Item	
Transformer at Loc 10662	0 0 0 0 0 0	0 (CSA)	0 0 0 0 0 0		
Back on Main Road (CSA)	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	Underground OK - End of Line	
Before - Located	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	Town of Vernon S. 500	
4785				Completed Job	

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 5/1/02

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-1-02 Inspected by L. H. H. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-1-02 Inspected by R.A.B. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-1-02 Inspected by R.H.B. Sub \_\_\_\_\_ Ckt

# OVERHEAD DISTRIBUTION INSPECTION FORM

Date 4-1-09 Inspected by T.M.H. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	CLEARANCE	COMMENTS
5087 Reverb Rd	0 0 0 0 0	Pole Condition/Leaning		
5082 Reverb Rd	0 0 0 0 0	Crossarm Condition		
	0 0 0 0 0	Insulators, DE, Pin		
	0 0 0 0 0	Soil Conditions		
	0 0 0 0 0	Pole Steps		
	0 0 0 0 0	Grounds Intact, Molding		
	0 0 0 0 0	Down Guys and Markers		
	0 0 0 0 0	Guy Bond, Insulator		
	0 0 0 0 0	Signs, Loc#, Warning		
	0 0 0 0 0	Customer Equipment		
	0 0 0 0 0	Conductor and Ties		
	0 0 0 0 0	U'Guard/Conduit Cond		
	0 0 0 0 0	RFI Check		
	OK	Transformer		
	OK (CSP)	Switches		
	OK	Cutouts		
	OK	Arresters		
	OK	Terminators		
	OK	Street Light		
	OK	Tree Trimming		
	OK	Ground Line Clearances		
	OK	Building Clearances		
	OK	Streets, Roads, Alleys		
	OK	Communication Clearance		
	OK	Crosses Rd Here		
	OK	under Tree Contract		
Transformer to loc 5027 Reverb	0 0 0 0 0			
Tap up hill	0 0 0 0 0			
Transfo near at Quarry	0 0 0 0 0			
Tap to location 5009 Reverb Rd	0 0 0 0 0			
Transformer to at 5009	0 0 0 0 0			

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-25-02 Inspected by 12A/M Sub \_\_\_\_\_ Ckt \_\_\_\_\_

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 3-25-02 Inspected by P.R.F. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

# OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-22-14 Inspected by ZAB Sub \_\_\_\_\_ ckt \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	CLEARANCE	COMMENTS
Trans P.11 at Loc 4932	0 0 0 0 0	Pole Condition/Leaning Crossarm Condition Insulators, DE, Pin Soil Conditions Pole Steps Grounds Intact, Molding Down Guys and Markers Guy Bond, Insulator Signs, Loc#, Warning Customer Equipment Conductor and Ties U'Guard/Conduit Cond RFI Check Transformer Switches Cutouts Arresters Terminators Street Light	0 0 0 0 0	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required
Tap Pole To 4938	0 0 0 0 0		0 0 0 0 0	
Riser Pole + Riser Loc 4938	0 0 0 0 0		0 0 0 0 0	
Trans Pole To 4917	0 0 0 0 0		0 0 0 0 0	
Trans Pole To 4906	0 0 0 0 0		0 0 0 0 0	
Trans Pole To 4903	0 0 0 0 0		0 0 0 0 0	
1st Pole on Old Tap Line Trail	0 0 0 0 0		0 0 0 0 0	
End of Line on Old Indians	0 0 0 0 0		0 0 0 0 0	
Trail from F				

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-22-02 Inspected by JRAK Sub  Ckt

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 3-22-02 Inspected by R.A.J. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 3-22-01 Inspected by EPB Sub \_\_\_\_\_ Ckt

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-22-02 Inspected by R.R.L. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-21-02 Inspected by J.R.H. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-28-07 Inspected by RFM Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-21-01 Inspected by EDH Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-21-02 Inspected by RAF Sub \_\_\_\_\_ Ckt \_\_\_\_\_

# OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-8-02 Inspected by RAB Sub \_\_\_\_\_ Ckt \_\_\_\_\_

MAP AREA	STRUCTURE		EQUIPMENT	CLEARANCE	COMMENTS
Liber ALwy Areas Wiper Wiper	LOCATION				
10 Lines	I	0 0	Pole Condition/Leaning		
"	I	0 0	Crossarm Condition		
"	I	0 0	Insulators, DE, Pin		
"	I	0 0	Soil Conditions		
"	I	0 0	Pole Steps		
"	I	0 0	Grounds Intact, Molding		
"	I	0 0	Down Guys and Markers		
"	I	0 0	Guy Bond, Insulator		
"	I	0 0	Signs, Loc#, Warning		
"	I	0 0	Customer Equipment		
"	I	0 0	Conductor and Ties		
"	I	0 0	U'Guard/Conduit Cond		
"	I	0 0	RFI Check		
"	I	0 0	Transformer		
"	I	0 0	Switches		
"	I	0 0	Cutouts		
"	I	0 0	Arresters		
"	I	0 0	Terminators		
"	I	0 0	Street Light		
"	I	0 0	Tree Trimming		
"	I	0 0	Ground Line Clearances		
"	I	0 0	Building Clearances		
"	I	0 0	Streets, Roads, Alleys		
"	I	0 0	Communication Clearance		
Tap To 9774	I	0 0	2nd Pole off Tap		
"	I	0 0			
"	I	0 0			
"	I	0 0			
"	I	0 0			
"	I	0 0			
"	I	0 0			
"	I	0 0			
Transformers at 9774	I	0 0	Trim in a couple years		
Trans. Pole at 9774	I	0 0	URD Sec To house		
Starting at KP E Sout	I	0 0	OH Sec To meter pole		
Tap To Fesselt	I	0 0	First pole on fesselt		
Tap To Fesselt	I	0 0			

# OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-8-02 Inspected by RTH Sub \_\_\_\_\_ Ckt \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	CLEARANCE	COMMENTS
	Twp of Overhead			
Trans Pole at 42nd Hwy 78	1	0 0 0 0 0	Pole Condition/Leaning	Rating Criteria
Back on 78	0 0 0 0 0	Crossarm Condition	0) Good Condition	
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Insulators, DE, Pin	1) Good Condition but aging	
Sec. Pole	0 0 0 0 0	Soil Conditions	2) Non-critical Maintenance Required	
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0	Pole Steps	3) Priority Maintenance Required	
"	0 0 0 0 0	Grounds Intact, Molding	4) Urgent Maintenance Required	
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Down Guys and Markers		
Sec. Pole	0 0 0 0 0	Guy Bond, Insulator		
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0	Signs, Loc#, Warning		
"	0 0 0 0 0	Customer Equipment		
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Conductor and Ties		
Sec. Pole	0 0 0 0 0	U'Guard/Conduit Cond		
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0	RFI Check		
"	0 0 0 0 0	Transformer		
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Switches		
Sec. Pole	0 0 0 0 0	Cutouts		
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0	Arresters		
"	0 0 0 0 0	Terminators		
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Street Light		
Sec. Pole	0 0 0 0 0	Tree Trimming		
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0	Ground Line Clearances		
"	0 0 0 0 0	Building Clearances		
Trans Pole To 42nd Hwy 78	0 0 0 0 0	Streets, Roads, Alleys		
Sec. Pole	0 0 0 0 0	Communication Clearance		
3 <sup>rd</sup> Pole back 3rd Hwy 78	0 0 0 0 0			
"	0 0 0 0 0			
Trans Pole To 42nd Hwy 78	0 0 0 0 0			
Sec. Pole	0 0 0 0 0			
Back on 3 <sup>rd</sup> Hwy 78	0 0 0 0 0			
"	0 0 0 0 0			
Trans Pole To 42nd Hwy 78	0 0 0 0 0			
Sec. Pole	0 0 0 0 0			
Back on 3 <sup>rd</sup> Hwy 78	0 0 0 0 0			
"	0 0 0 0 0			
Trans Pole To 42nd Hwy 78	0 0 0 0 0			
Sec. Pole	0 0 0 0 0			
Meter Pole	0 0 0 0 0			
1 <sup>st</sup> Pole	0 0 0 0 0			

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 3-8-02 Inspected by PCA Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 3-8-02 Inspected by R.H.H. Sub \_\_\_\_\_ Ckt \_\_\_\_\_

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date \_\_\_\_\_ Inspected by \_\_\_\_\_ Sub \_\_\_\_\_ Ckt / C \_\_\_\_\_

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date \_\_\_\_\_ Inspected by \_\_\_\_\_ Sub \_\_\_\_\_ Ckt G

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date \_\_\_\_\_ Inspected by KOJ Sub \_\_\_\_\_ Ckt 6

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 5/4/01 Inspected by Rod Sub \_\_\_\_\_ Ckt 5

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 5/4/01 Inspected by Razl Sub \_\_\_\_\_ Ckt F

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 5/3/01 Inspected by Rog Sub \_\_\_\_\_ Ckt 3

## OVERHEAD DISTRIBUTION INSPECTION FORM

Date 5/3/61 Inspected by Rud Sub \_\_\_\_\_ Ckt 2

2 split going on second and com much secondary to shed  
R from young connections

**OVERHEAD DISTRIBUTION INSPECTION FORM**

Date 5/3/01 Inspected by Rud Sub  Ckt 1

UNDERGROUND DISTRIBUTION INSPECTION FORM Date 1/30/03 Inspected by Mirr/C sub \_\_\_\_\_ Circuit \_\_\_\_\_

MAP AREA	STRUCTURE	EQUIPMENT	IR / RFI Scan	COMMENTS
		EQUIPMENT LOCATION		
URD Trans. Hillside	1	1	Enclosure Condition	
1443 East of Center	0	0	Level / Leaning	
Ent. by well	1	0	Security	
URD Trans. Center	1	0	Grade / Accessibility	
2118	1	1	Numbering	
2036 Steph.	2	1	Voids / Gaps	
Street West	0	0	Signage	
Line Nicul et	0	0	Pad / Vault Condition	
Line Steph. Crt	0	1	Transformers, Leaks, Bushings, Grounding, Bonds, Elbows, Arrestors, Cable cond, Connections	
and Street	0	0	Primary Pedestals, Elbows, Grounding, Bonds, Junction cond.	
			Secondary Pedestals, Connections	
			Switches, Signage, Insulators, Security, Linkage, Ground, Bonds	
			Main Three Phase Feeders, Risers & Switchgear	
			Priority URD Transformers, Bushings and Tank heating	
			Rating Criteria	
			0) Good Condition	
			1) Good Condition but aging	
			2) Non-critical Maintenance Required	
			3) Priority Maintenance Required	
			4) Urgent Maintenance Required	
			Date Item Corrected	
			Corrected By	

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

*John + Rob*

DATE:

6-20-01

SUBSTATION:

BLACK EARTH

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1 2 3 4 (Circle One)

	inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	X			
Transformer Bushings	X	ROBINS NEST		
Cable Terminators	X			

## MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled		NA		
Ground Connections				
Positioning and Alignment				
Bushings and Supports				

## MOTOR OPERATED SWITCHES

RATING:  1 2 3 4 (Circle One)

OPEN/CLOSED Indicator		NA		
Proper Labeling				
Cabinet Heater				
Operations Counter				
locking criteria				

## MONTHLY SUBSTATION INSPECTION FORM

SPECTED BY: Jim + Rod  
DATE: 6-20-01  
DESTINATION: BLACK EARTH.

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING:  1    2    3    4      (Circle One)

# ANNUAL SUBSTATION INSPECTION FORM

Date _____	Inspected by _____	Substation _____	Comments _____	Maintenance Completed _____	Corrected By _____																																										
<b>EQUIPMENT LISTING</b>																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6" style="text-align: center;">SUBSTATION INSPECTION CRITERIA</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Transformer</td> <td style="width: 15%;">Check equipment for level</td> <td style="width: 15%;">Check condition of concrete pads</td> <td style="width: 15%;">Perform oil and DGA analysis</td> <td style="width: 15%;">Battery checks - individual cell voltages, resistances, intercell cell gravity</td> <td style="width: 15%;">Nameplate legible</td> </tr> <tr> <td>LTC or regulators</td> <td></td> <td></td> <td></td> <td></td> <td>Equipment paint condition</td> </tr> <tr> <td>High Voltage Breaker</td> <td></td> <td></td> <td></td> <td></td> <td>Processor identification labels</td> </tr> <tr> <td colspan="6">IR / RF scans and checks</td> </tr> <tr> <td colspan="6">Rating Criteria            0) Good Condition            1) Good Condition but aging            2) Non-critical Maintenance Required            3) Priority Maintenance Required            4) Urgent Maintenance Required         </td> </tr> <tr> <td colspan="6" style="text-align: center; padding-top: 10px;"> <b>Date Item Corrected</b> </td> </tr> </tbody> </table>						SUBSTATION INSPECTION CRITERIA						Transformer	Check equipment for level	Check condition of concrete pads	Perform oil and DGA analysis	Battery checks - individual cell voltages, resistances, intercell cell gravity	Nameplate legible	LTC or regulators					Equipment paint condition	High Voltage Breaker					Processor identification labels	IR / RF scans and checks						Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required						<b>Date Item Corrected</b>					
SUBSTATION INSPECTION CRITERIA																																															
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Switches																																															
Control house battery																																															
Transmission line RFI																																															

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Jim Rod*

DATE: *6-20-01*

SUBSTATION: *BLACK EARTH.*

## CONTROL HOUSE/MISCELLANEOUS

RATING: *0* 1 2 3 4 (Circle One)

INSPECTED	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time		NA		
AC/DC Load Center Breakers		NA		
Room Temperature		NA		
Rodents	X	O.K		
Panels Labeled Properly		NA		
Panel Lights		NA		
Announcer Panel		NA		
Panel Meters		NA		
SCADA System RTU		NA		
SCADA Alarms		NA		
Position Indicators Agree		NA		
Relay Target Information		NA		
Emergency Contact Directory	X	O.K		
Chaitone for Phone				
Safety Equipment		NA		

## BATTERY

RATING: *0* 1 2 3 4 (Circle One)

Liquid Levels				
Proper Float Voltage on Charger & Battery				
Specific Gravity in Pilot Cell				
Personal Protective Equipment				
Connection Corrosion				
Leaking Cells				
Dated Solution in Eyewash Station				

## YARD & FENCE

RATING: *0* 1 2 3 4 (Circle One)

Fire Extinguisher Charged		NA		
Fence Ground Connections	X			
Fence Secured	X			
Security and Emergency Lights		NA		
Site Base and Grade	X			
Standing Water	X			
Warning Signs	X			

MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim + Rod

DATE: 6-20-01

SUBSTATION: BLACK EARTH

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: \_\_\_\_\_

=

DATE: \_\_\_\_\_

SUBSTATION: \_\_\_\_\_

## HIGH & LOW VOLTAGE BUSS WORK

RATING: 0 1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	0	- blown arrester		
Bird Nests	1			
Transformer Bushings	0			
Cable Terminators	0			

## MANUAL SWITCHES

RATING: 0 1 2 3 4 (Circle One)

Properly Labeled	0			
Ground Connections	0			
Positioning and Alignment	0			
Bushings and Supports	0			

## MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	0			
Proper Labeling	0			
Cabinet Heater	N/A			
Operations Counter				
locking criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

## **SUBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: 0 1 2 3 4

(Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

 INSPECTED BY: *Jim + Rod*

 DATE: *7-9-01*

 SUBSTATION: *BLACK EARTH*
**CONTROL HOUSE/MISCELLANEOUS**

RATING: 0 1 2 3 4 (Circle One)

	INSPECTED	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time			N/A		
AC/DC Load Center Breakers					
Room Temperature					
Rodents					
Panels Labeled Properly					
Panel Lights					
Announcer Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory					
Call Home for Phone					
Safety Equipment					

**BATTERY**

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Batteries					
Specific Gravity in Plate Cell			N/A		
Personal Protective Equipment					
Connection Corrosion					
Leaking Cells					
Dated Solution in Eyewash Station					

**YARD & FENCE**

RATING: 0 1 2 3 4 (Circle One)

Fire Extinguisher Charged		N/A			
Fence Ground Connections		0			
Fence Secured		0			
Security and Emergency Lights		N/A			
Site Base and Grade		0			
Standing Water		0			
Warning Signs		0			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING: 0 1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	O			
Bushing and Arrestor	O			
Oil Leaks	I	little oil leak bushing top		
Main Tank	O			
Sample Valves	O			
Radiators	O			
Radiator Bank	O			
Tank Pressure	O	+5		
Tank Oil Level	O	med.		
Temperature Gauge	O	60		
Cooling Fans	N/A			

TRANSFORMER LTC or  
VOLTAGE REGULATORS

RATING: 0 1 2 3 4

(Circle One)

Tank Oil Level	O			
Crac Hand Positions	O			
Cabinet Light	N/A			
Cereration Count	01-59255 2-48198 3-64627			
Tank Pressure	O +2 +2 +4			
Cabinet Heater	N/A			
Cabinet Contamination				

# ANNUAL SUBSTATION INSPECTION FORM

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMENTS	MAINTENANCE COMPLETED	Corrected By	Date Item Corrected	Substation	Inspected by	Date
Transformer	Railing Criteria							
LTC or regulators	0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required							
High Voltage Breaker	IR / RFI scans and checks							
Feeder CBs / Reclosers	Procedure identification labels							
Switches	Equipment paint condition							
Control house battery	Nameplate legible							
Transmission line RFI	Cell specific gravity resistance, intercell strap							
	Perform cell and DGA analysis							
	Check concrete of concrete pads							
	Check equipment for level							

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim + Mark

DATE: 9-20-01

SUBSTATION: BLACK EARTH

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1    2    3     4    (Circle One)

Inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	X			
Transformer Bushings	X			
Cable Terminators	X			

## MANUAL SWITCHES

RATING: 0    1    2    3    4    (Circle One)

Properly Labeled				
Ground Connections				
Positioning and Alignment		NA		
Bushings and Supports				

## MOTOR OPERATED SWITCHES

RATING: 0    1    2    3    4    (Circle One)

OPEN/CLOSED Indicator				
Proper Labeling				
Cabinet Heater		NA		
Operations Counter				
Locking criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Tim + MARK  
DATE: 9-20-01  
SUBSTATION: BLACK EARTH

## **FEEDER CIRCUIT BREAKER / RECLOSER**

RATING: 0 1 2 3  (Circle One)

## ANNUAL SUBSTATION INSPECTION FORM

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Substitutional Isomorphism

SUBSTATION INSPECTION CRITERIA	COMMENTS	MAINTENANCE COMPLETED			
		Date Item Corrected	Corrected By		
Rating Criteria					
	0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required				
IR / RF scans and checks					
Procedure identification labels					
Equipment paint condition					
Nameplate legible					
Battery checks - intercell stra resistances, individual cell voltages, Cell specific gravity					
Perform cell and DGA analysis					
Check condition of concrete pads					
Check equipment for level					
EQUIPMENT LISTING					
Transformer					
LTC or regulators					
High Voltage Breaker					
Feeder CBs / Reclosers					
Switches					
Control house battery					
Transmission line RFI					

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Tim + MARK  
 DATE: 9-20-01  
 SUBSTATION: BLACK EARTH

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

	inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time	X			
AC/DC Load Center Breakers	X			
Room Temperature	X			
Rodents	X			
Panels Labeled Properly	X			
Panel Lights	X			
Announcer Panel	X	N/A		
Panel Meters	X			
SCADA System RTU	X			
SCADA Alarms	X			
Position Indicators Agree	X			
Relay Target Information	X			
Emergency Contact Directory	X			
Dialtone for Phone	X			
Safety Equipment	X			

## BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels	X			
Proper Float Voltage on Charger	X			
Battery	X			
Specific Gravity in Pilot Cell	X			
Personal Protective Equipment	X	N/A		
Connection Corrosion	X			
Leaking Cells	X			
Dated Solution in Eyewash Station	X			
	X			
	X			

## YARD & FENCE

RATING: 0 1 2 3 4 (Circle One)

Fire Extinguisher Charged	X			
Fence Ground Connections	X			
Fence Secured	X			
Security and Emergency Lights	X			
Site Base and Grade	X			
Standing Water	X	NO		
Warning Signs	X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim + mark

DATE: 9-20-01

SUBSTATION: BLACK EARTH

RATING:  1     2     3     4    (Circle One)

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: 0 1 2 3 4 (Circle One)

## **MONTHLY SUBSTATION INSPECTION FORM**

INSPECTED BY: Rick & Mark

DATE: 11/15/02

SUBSTATION: BICK EARTH

## **FEEDER CIRCUIT BREAKER / RECLOSER**

RATING: 0 1 2 3 4

(Circle One)

## MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Rick & Mark

DATE: 11/15/02

SUBSTATION: Black Earth

### HIGH & LOW VOLTAGE BUSS WORK

RATING: 0 1 2 3 4 (Circle One)

inspected		COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	X			
Transformer Bushings	X	Chipped Dirty		
Cable Terminators		N/A		

### MANUAL SWITCHES

RATING: 0 1 2 3 4 (Circle One)

Properly Labeled	X	No Labels		
Ground Connections	X			
Positioning and Alignment	X			
Bushings and Supports	X			

### MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator		N/A		
Proper Labeling				
Cabinet Heater				
Operations Counter				
locking criteria				

## IX SUBSTATION - MONTHLY INSPECTION GUIDE

### TRANSFORMER MAIN TANK:

- Oil in bushings
- Bushing and arrestor porcelain
  - ✓ Cracks or chips
  - ✓ Rust or dirt
- Oil leaks
  - ✓ Main tank
  - ✓ Sample valves
  - ✓ Radiators
- Radiator bank
  - ✓ warm on top, cool at bottom
- Tank pressure
- Tank oil level
- Temperature gauge
- Cooling fans

11/15/02  
Black Earth

### TRANSFORMER LTC or VOLTAGE REGULATORS:

- Tank oil level
- Drag hand positions
- Cabinet light
- Operation count
- Tank pressure
- Cabinet heater
- Cabinet contamination

### TRANSMISSION CIRCUIT BREAKERS:

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
  - ✓ Cracks or chips
  - ✓ Rust or dirt
- Line and load side disconnect switches
  - ✓ Properly labeled
  - ✓ Aligned properly
- Handles grounded
- Emergency trip button
- Air / Oil compressors
- Air / Oil pressure gauge
- Spring operated mechanism
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

## IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

### FEEDER CIRCUIT BREAKERS / RECLOSERS

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
  - ✓ Cracks or chips
  - ✓ Rust or dirt
- Line and load side disconnect switches
  - ✓ Labeled properly
  - ✓ Aligned properly
  - ✓ Handles grounded
- Emergency trip button
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

### HIGH AND LOW VOLTAGE BUSS WORK:

- Bushing, insulator, arrestor, and support insulators
  - ✓ Chips or cracks
  - ✓ Rust or dirt
- Bird nests
- Potential transformer bushings
  - ✓ Cracks or chips
  - ✓ Rust or dirt
- Cable terminators
  - ✓ Leaking fluid
  - ✓ Cracks or chips

### MANUAL SWITCHES:

- Properly labeled
- Ground connections
- Positioning and alignment
- Bushing and support insulators
  - ✓ Cracks or chips
  - ✓ Rust or dirt

### MOTOR OPERATED SWITCHES:

- OPEN/CLOSED indicator
- Properly labeled
- Cabinet heater
- Operations counter

## IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

### CONTROL HOUSE/MISCELLANEOUS:

- Clock displays proper time
- AC/DC load center breakers
- Room temperature
- Rodents
- Panels labeled properly
- Panel lights
- Annunciator panel
- Panel meters
- SCADA system RTU
- SCADA alarms
- Position indicators agree
- Relay target information
- Emergency contact directory & dial tone for phone
- Safety Equipment

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### BATTERY:

- Liquid levels
- Proper float voltage on charger and battery
- Specific gravity in pilot cell
- Personal Protective Equipment
- Connection corrosion
- Leaking cells
- Dated solution in eyewash station

### YARD AND FENCE:

- Fire extinguisher charged
- Fence ground connections
- Fence secured
- Security and emergency lights
- Site base and grade
- Standing water
- Warning signs

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Rick & Mark

DATE: 1/15/02

SUBSTATION: Black Earth

## TRANSFORMER MAIN TANK

RATING: 0 1 2 3 4

(Circle One)

inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	X		
Bushing and Arrestor	Big In Chipped Small one Dirty		
Oil Leaks	X		
Main Tank	X <del>Scars</del>		
Sample Valves	X		
Radiators	X		
Radiator Bank	N/A		
Tank Pressure	X 0		
Tank Oil Level	X 50%		
Temperature Gauge	X 30°		
Cooling Fans	X		

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: 0 1 2 3 4

(Circle One)

Tank Oil Level	X A, E LOW B 1/2		
Drog Hand Positions	X 6Boost+7Buck 7Boost+7Buck 16Boost+6Buck		
Cabinet Light	X		
Operation Count	X		
Tank Pressure	N/A		
Cabinet Heater	N/A		
Cabinet Contamination	X		

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: RICK + Mark  
 DATE: 1/15/02  
 SUBSTATION: Black Earth

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time				
AC/DC Load Center Breakers				
Room Temperature				
Rodents				
Panels Labeled Properly		N/A		
Panel Lights				
Annunciator Panel				
Panel Meters				
SCADA System RTU				
SCADA Alarms				
Position Indicators Agree				
Relay Target Information				
Emergency Contact Directory				
Phone for Phone				
Safety Equipment				

## BATTERY

RATING: 0 1 2 3 4

(Circle One)

Liquid Levels				
Proper Float Voltage on Charger & Batteries				
Specific Gravity in Pilot Cell		N/A		
Personal Protective Equipment				
Connection Corrosion				
Leaking Cells				
Dated Solution in Eyewash Station				

## YARD & FENCE

RATING: 0 1 2 3 4

(Circle One)

Fire Extinguisher Charged		N/A		
Fence Ground Connections	X			
Fence Secured	X			
Security and Emergency Lights		N/A		
Site Base and Grade	X			
Standing Water	X			
Warning Signs	X			

## X Substation - Annual Inspection Guide

- Check equipment for level
- Check condition of concrete pads
- Perform oil and DGA analysis
- Battery
  - ✓ Intercell strap resistance
  - ✓ Individual cell voltages
  - ✓ Cell specific gravity
- Nameplate legible
- Equipment paint condition
- Proper equipment ID labels
- IR / RFI scans and checks

# ANNUAL SUBSTATION INSPECTION FORM

Date 11/5/02 Inspected by Rick & Mark Substation Black Earth

		SUBSTATION INSPECTION CRITERIA		COMMENTS	MAINTENANCE COMPLETED		
<b>EQUIPMENT LISTING</b>							
Transformer	O	O	W/A	Check equipment for level			
LTC or regulators	O	O	W/A	Check condition of concrete pads			
High Voltage Breaker				Perform oil and DGA analysis			
Feeder CBs / Reclosers	O	O	W/A	Battery checks - Intercell strap resistance, Individual cell voltages, Cell specific gravity			
Switches	O	O		Nameplate legible			
Control house battery				Equipment paint condition			
Transmission line RFI				Proper identification labels			
				IR / RFI scans and checks			
				Rating Criteria ..... 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required			
				Date Item Corrected			
				Corrected By			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING:  0    1    2    3    4      (Circle One)

2 3 4

(Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1 2 3 4 (Circle One)

	Inspected	Comments	Date Corrected	Corrected By
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	○			
Transformer Bushings	1	small birds nest		
Cable Terminators	○	dirty		
Older wood structure	○			
	1			

## MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	1	label better		
Ground Connections	○			
Positioning and Alignment	○			
Bushings and Supports	○			
	○			

## MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator				
Proper Labeling		N/A		
Cabinet Heater				
Operations Counter	○			
Locking Criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING: 0     1    2    3    4    (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Cil in Bushings	C			
Bushing and Arrestor	I	3rd bush discolored		
Cil Leaks	C			
Main Tank	C			
Sample Valves	C			
Radiators	C			
Radiator Bank	I	bee hive		
Tank Pressure	C	on 0		
Tank Oil Level	O			
Temperature Gauge	C	30°		
Cooling Fans		N/A		

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING:  0    1    2    3    4    (Circle One)

Tank Oil Level	<del>2</del>	O	<del>2</del>
Diac Hand Positions	<del>2</del>	O	<del>2</del>
Cabinet Light	N/A	1.5 1.5	
Cooler Count	O	00046 50037 66148	
Tank Pressure	O	4 pounds 4 3	
Cabinet Heater	<del>2</del>	N/A	
Cabinet Contamination	O	<del>2</del>	

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Rod + Lory*  
 DATE: ~~000~~ *2/1/02*  
 SUBSTATION: *Black Earth*

## CONTROL HOUSE/MISCELLANEOUS

RATING:  1 2 3 4

(Circle One)

inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time	<i>N/A</i>		
AC/DC Load Center Breakers			
Room Temperature			
Rodents	<i>birds night</i>		
Panels Labeled Properly			
Panel Lights			
Annunciator Panel			
Panel Meters			
SCADA System RTU			
SCADA Alarms			
Position Indicators Agree			
Relay Target Information			
Emergency Contact Directory			
Dialtone for Phone			
Safety Equipment			

## BATTERY

RATING:  1 2 3 4

(Circle One)

Liquid Levels			
Proper Float Voltage on Charger & Battery	<i>N/A</i>		
Specific Gravity in Pilot Cell			
Personal Protective Equipment			
Connection Corrosion			
Leaking Cells			
Dated Solution in Eyewash Station	<i>N/A</i>		

## YARD & FENCE

RATING:  1 2 3 4

(Circle One)

Fire Extinguisher Charged	<i>N/A</i>		
Fence Ground Connections	<i>0</i>	<i>good</i>	
Fence Secured	<i>0</i>	<i>good</i>	
Security and Emergency Lights	<i>0</i>	<i>good</i>	
Site Base and Grade	<i>0</i>		
Standing Water	<i>0</i>		
Warning Signs	<i>0</i>		

## ANNUAL SUBSTATION INSPECTION FORM

Date \_\_\_\_\_ Inspected by \_\_\_\_\_

### Substitution

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMENTS	DATE ITEM CORRECTED	CORRECTED BY	MAINTENANCE COMPLETED	
					1) GOOD CONDITION	2) NON-CRITICAL MAINTENANCE REQUIRED
Transformer	NAMEPLATE LEGIBLE	BATTERY CHECKS - INTERCELL STRAND RESISTANCE, INDIVIDUAL CELL VOLTAGES, CELL SPECIFIC GRAVITY	IR / RFI SCANS AND CHECKS	IR / RFI	✓	✓
LTC or regulators	CHECK CONCRETE PADS	PERFORM OIL AND DGA ANALYSIS	✓	✓	✓	✓
High Voltage Breaker	CHECK EQUIPMENT FOR LEVEEL	✓	✓	✓	✓	✓
Feeder CBs / Reclosers	✓	✓	✓	✓	✓	✓
Switches	✓	✓	✓	✓	✓	✓
Control house battery	✓	✓	✓	✓	✓	✓
Transmission line RFI	✓	✓	✓	✓	✓	✓

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Red + Cory*

DATE: *3/8/02*

SUBSTATION: *8E*

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing; Insulator, Arrestor, and Supports	0			
Bird Nests	1	Above middle v, Nogic reg.		
Transformer Bushings	0			
Cable Terminators	0			

## MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	0			
Ground Connections	0			
Positioning and Alignment	0			
Bushings and Supports	0			

## MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator				
Proper Labeling	N/A			
Cabinet Heater				
Operations Counter				
locking criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

	Inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time					
AC/DC Load Center Breakers					
Room Temperature					
Rodents					
Panels Labeled Properly		X			
Panel Lights		X			
Annunciator Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory					
Dialtone for Phone					
Safety Equipment					

## BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Batteries					
Specific Gravity in Pilot Cell	X				
Personal Protective Equipment					
Connection Corrosion					
Leaking Cells					
Dated Solution in Eyewash Station					

## YARD &amp; FENCE

RATING: 0 1 2 3 4 (Circle One)

Fire Extinguisher Charged	X				
Fence Ground Connections	O				
Fence Secured	O				
Security and Emergency Lights	X				
Site Base and Grade	O				
Standing Water	O				
Warning Signs	O				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING: 0     1    2    3    4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	0			
Bushing and Arrestor	1	oil leak possible dirty bushing #2 from left		
Oil Leaks	0	58°	48° after bushings	
Main Tank	0			
Sample Valves	0			
Radiators	0			
Radiator Bank	0			
Tank Pressure	6	1.5 PSI		
Tank Oil Level	5	40%		
Temperature Gauge	30	35°C		
Cooling Fans	N/A			
		42°F - 55°F on buss work bushing side		
		46°F primary chip on 1st bushing left side 69KV		

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING:  0    1    2    3    4

(Circle One)

Tank Oil Level	0	little lower on 3rd stage	
Drag Hand Positions	0	3 buck / 6 buck 0 boost) some 1st 2 reg 2 buck (5 buck boost)	
Cabinet Light	0		
Coeration Count	0	60883 / 50294 / 66405	
Tank Pressure	0		
Cabinet Heater	N/A		
Cabinet Contamination	0		
	3.2A	3.6A	3.5A
	1.2A	2A	1.7A

# MONTHLY SUBSTATION INSPECTION FORM

SPECTED BY:

TEC

**IBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING:  0  1  2  3  4 (Circle One)

# ANNUAL SUBSTATION INSPECTION FORM

Date

Inspected by

## Substitution

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMENTS	Maintenance Completed	Date Item Corrected	Corrected By
			Rating Criteria		
Transformer	Check equipment for level		0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required		
LTC or regulators	Check condition of concrete pads				
High Voltage Breaker	Petroleum oil and DGA analysis				
Feeder CBs / Reclosers	Battery checks - Inter-cell resistance, individual cell voltages, cell specific gravity				
Switches	Nameplate legible				
Control house battery	Equipment paint condition				
Transmission line RFI	Proper identification labels				
	IR / RFI scans and checks				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim + Rod

DATE: 4/02

SUBSTATION: Black Earth

## HIGH & LOW VOLTAGE BUSS WORK

RATING: 0  1 2 3 4 (Circle One)

inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing: Insulator, Arrestor, and Supports	0		
Bird Nests	1		
Transformer Bushings	0		
Cable Terminators	0		

## MANUAL SWITCHES

RATING:  0 1 2 3 4 (Circle One)

Properly Labeled	0		
Ground Connections	0		
Positioning and Alignment	0		
Bushings and Supports	0		

## MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	/		
Proper Labeling	/		
Cabinet Heater	/		
Operations Counter	/		
locking criteria	/		

## MONTHLY SUBSTATION INSPECTION FORM

SUSPECTED BY:

ATE

SUBSTATION:

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: ① 1 2 3 4 (Circle One)

## ANNUAL SUBSTATION INSPECTION FORM

Date

Inspected by

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1

SUBSTATION INSPECTION CRITERIA	COMMENTS	MAINTENANCE COMPLETED	Date Item Corrected	Corrected By
			Rating Criteria	
			0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required	
			IR / RFI scans and checks	
			Proper identification labels	
			Equipment paint condition	
			Nameplate legible	
			Battery checks - intercell strands resistances, individual cell voltages, cell specific gravity	
			Petroform oil and DGA analysis	
			Check condition of concrete pads	
			Check equipment for level	
<b>EQUIPMENT LISTING</b>				
	Transformer			
	LTC or regulators			
	High Voltage Breaker			
	Feeder CBs / Reclosers			
	Switches			
	Control house battery			
	Transmission line RFI			

## **MONTHLY SUBSTATION INSPECTION FORM**

INSPECTED BY:

**DATE:**

**SUBSTATION:**

**TRANSFORMER MAIN TANK**

RATING: 0  1 2 3 4

(Circle One)

## **TRANSFORMER LTC or VOLTAGE REGULATORS**

RATING: 0 1 2 3 4

(Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time				
AC/DC Load Center Breakers				
Room Temperature				
Rodents				
Panels Labeled Properly		A		
Panel Lights				
Announcer Panel				
Panel Meters				
SCADA System RTU				
SCADA Alarms				
Position Indicators Agree				
Relay Target Information				
Emergency Contact Directory				
Handset for Phone				
Safety Equipment				

## BATTERY

RATING: 0 1 2 3 4

(Circle One)

Fluid Levels				
Upper Float Voltage on Charger & Batteries				
Precipice Gravity in Flood Cell				
Personal Protective Equipment		A		
Connection Corrosion				
Leaking Cells				
Used Solution in Eyewash Station				

## YARD &amp; FENCE

RATING: 0 1 2 3 4

(Circle One)

Extinguisher Charged	A			
Ground Connections	O			
Secured	O			
Security and Emergency Lights	N			
Base and Grade	O			
Fencing Water	O			
Wind Signs	O			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

**SUBSTATION:**

## **FEEDER CIRCUIT BREAKER / RECLOSER**

RATING: 0  1 2 3 4 (Circle One)

## ANNUAL SUBSTATION INSPECTION FORM

Inspected by \_\_\_\_\_  
Date \_\_\_\_\_

Subscription

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EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMENTS	Rating Criteria	Date Item Corrected	Corrected By	Maintenance Completed
				0) Good Condition	1) Good Condition but aging	2) Non-critical Maintenance Required
Transformer	Check equipment for level	Check condition of concrete pads	Perform oil and DGA analysis	Battery checks - intercell resistance, individual cell voltages, cell specific gravity	Proper identification labels	IR / RFI scans and checks
LTC or regulators						
High Voltage Breaker						
Feeder CBs / Reclosers						
Switches						
Control house battery						
Transmission line RFI						

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING: 0  1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	O			
Bushing and Arrestor	I			
Oil Leaks	O			
Main Tank	O			
Sample Valves	O			
Radiators	O			
Radiator Bank	O			
Tank Pressure	O			
Tank Oil Level	O			
Temperature Gauge	O			
Cooling Fans	N/A			

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: 0  1 2 3 4 (Circle One)

Tank Oil Level	O			
Drac Hand Positions	O			
Cabinet Light	N/A			
Cooler Count	O			
Tank Pressure	O			
Cabinet Heater	N/A			
Cabinet Contamination	O			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4

(Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time					
AC/DC Load Center Breakers					
Room Temperature					
Rodents					
Panels Labeled Properly		N/A			
Panel Lights					
Annunciator Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory &					
Dialtone for Phone					
Safety Equipment					

## BATTERY

RATING: 0 1 2 3 4

(Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Battery					
Specific Gravity in Pilot Cell					
Personal Protective Equipment		N/A			
Connection Corrosion					
Leaking Cells					
Dated Solution in Eyewash Station					

## YARD &amp; FENCE

RATING: 0 1 2 3 4

(Circle One)

Fire Extinguisher Charged		N/A			
Fence Ground Connections		0			
Fence Secured		0			
Security and Emergency Lights		N/A			
Site Base and Grade		0			
Standing Water		0			
Warning Signs		0			

## MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Bob & Co/7*

DATE: *5/02*

SUBSTATION: *Black Earth*

### HIGH & LOW VOLTAGE BUSS WORK

RATING: 0 1 **2** 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	0			
Bird Nests	1			
Transformer Bushings	0			
Cable Terminators	0			

### MANUAL SWITCHES

RATING: 0 **1** 2 3 4 (Circle One)

Properly Labeled	0			
Ground Connections	0			
Positioning and Alignment	0			
Bushings and Supports	0			

### MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator				
Proper Labeling	U/A			
Cabinet Heater				
Operations Counter				
locking criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Rod + Cory

DATE: 6/10/03

SUBSTATION: Black Earth

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1  2  3  4 (Circle One)

inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
X			
Busing, Insulator, Arrestor, and Supports	OK		
Bird Nests	1 birds nests knocked down - one by primary metering		
Transformer Bushings	OK		
Cable Terminators	OK		

~~DK~~ Wood Structure - getting bad hole in upper crossarm across top rotting  
closest to blue mounds st.

## MANUAL SWITCHES

RATING:  1  2  3  4 (Circle One)

Properly Labeled	OK
Ground Connections	OK
Positioning and Alignment	OK
Bushings and Supports	OK

## MOTOR OPERATED SWITCHES

RATING:  1  2  3  4 (Circle One)

OPEN/CLOSED Indicator	1
Proper Labeling	
Cabinet Heater	N/A
Operations Counter	OK
locking criteria	

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time		N/A			
AC/DC Load Center Breakers		N/A			
Room Temperature		N/A			
Rodents					
Panels Labeled Properly					
Panel Lights					
Announcer Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory &					
Diaphragm for Phone					
Safety Equipment					

BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels	N/A			
Proper Float Voltage on Charger & Batteries				
Specific Gravity in Float Cell				
Personal Protective Equipment				
Connection Corrosion				
Leaking Cells				
Dated Solution in Eyewash Station				

YARD &amp; FENCE

RATING: 0 (1) 2 3 4 (Circle One)

Fire Extinguisher Charged	N/A			
Fence Ground Connections	0/4			
Fence Secured	0/4			
Security and Emergency Lights	N/A			
Site Base and Grade	- grass needs gravel			
Standing Water	0/4			
Warning Signs	0/4			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY

DATE:

## SUBSTATION

## TRANSFORMER MAIN TANK

RATING: 0 1 2 3 4

(Circle One)

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: (0) 1 2 3 4

(Circle One)

# ANNUAL SUBSTATION INSPECTION FORM

EQUIPMENT LISTING	Date _____	Inspected by _____	SUBSTATION INSPECTION CRITERIA		COMMENTS	MAINTENANCE COMPLETED	Corrected By _____
			Substation				
Transformer							
LTC or regulators							
High Voltage Breaker							
Feeder CBs / Reclosers							
Switches							
Control house battery							
Transmission line RFI							
Battery checks - Intercell stradd resistance, individual cell voltages, Cell specific gravity							
Check condition of concrete pacs							
Check equipment for level							
Perform cell and DGA analysis							
Nameplate legible							
Equipment paint condition							
Procedure certification labels							
IR / RF scans and checks							
Rating Criteria							
0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required							
Date item Corrected							

# **MONTHLY SUBSTATION INSPECTION FORM**

INSPECTED BY:

DATE:

**SUBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: (0) 1 2 3 4

(Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Rod + Cory

DATE: 7/02

SUBSTATION: Black Earth

## HIGH & LOW VOLTAGE BUSS WORK

RATING: 0  1 2 3 4 (Circle One)

inspected	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	OK		
Bird Nests	1 small one		
Transformer Bushings	0		
Cable Terminators	0		

## MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	OK
Ground Connections	OK
Positioning and Alignment	OK
Bushings and Supports	OK

## MOTOR OPERATED SWITCHES

RATING:  1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	N/A
Proper Labeling	
Cabinet Heater	
Operations Counter	
locking criteria	

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

CONTROL HOUSE/MISCELLANEOUS		RATING: 0 1 2 3 4	(Circle One)	
INSPECTED	COMMENTS		DATE CORRECTED	CORRECTED BY
<input checked="" type="checkbox"/>				
Clock Displays Proper Time				
AC/DC Load Center Breakers				
Room Temperature				
Rodents				
Panels Labeled Properly	N/A			
Panel Lights				
Announcer Panel				
Panel Meters				
SCADA System RTU				
SCADA Alarms				
Position Indicators Agree				
Relay Target Information				
Emergency Contact Directory				
Buttons for Phone				
Safety Equipment				
BATTERY		RATING: 0 1 2 3 4	(Circle One)	
Liquid Levels				
Proper Float Voltage on Charger				
Battery				
Specific Gravity in Float Cell				
Personal Protective Equipment				
Connection Corrosion				
Leaking Cells				
Dated Solution in Eyewash Station				
YARD & FENCE		RATING: 0 1 2 3 4	(Circle One)	
Fire Extinguisher Charged	N/A			
Fence Ground Connections	0			
Fence Secured	0			
Security and Emergency Lights	N/A			
Site Base and Grade	0			
Standing Water	0			
Warning Signs	0			

# **MONTHLY SUBSTATION INSPECTION FORM**

INSPECTED BY:

DATE:

## SUBSTATION

## TRANSFORMER MAIN TANK

RATING: 0 1 2 3 4

(Circle One)

**TRANSFORMER LTC or  
VOLTAGE REGULATORS**

RATING: 6 1 2 3 4

(Circle One)

# ANNUAL SUBSTATION INSPECTION FORM

EQUIPMENT LISTING	Date _____ Inspected by _____	SUBSTATION INSPECTION CRITERIA		COMMENTS	MAINTENANCE COMPLETED
		Substation	Comments		
Transformer					
LTC or regulators					
High Voltage Breaker					
Feeder CBs / Reclosers					
Switches					
Control house battery					
Transmission line RFI					
Rating Criteria					
0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required					
Date Item Corrected					
Corrected By					

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY

DATE

**SUBSTATION**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: 2

1

7

(Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim

DATE: 8-21-02

SUBSTATION: BLACK EARTH

## HIGH & LOW VOLTAGE BUSS WORK

RATING: 0 1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	O			
Bird Nests	O	OK		
Transformer Bushings	O			
Cable Terminators	O			

## MANUAL SWITCHES

RATING: 0 1 2 3 4 (Circle One)

Properly Labeled				
Ground Connections		→ ALL OK		
Positioning and Alignment				
Bushings and Supports				

## MOTOR OPERATED SWITCHES

RATING: 0 1 2 3 4 (Circle One)

OPEN/CLOSED Indicator				
Proper Labeling				
Cabinet Heater		N.A.		
Operations Counter				
locking criteria				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Tim*DATE: *8-21-02*SUBSTATION: *B.E.*

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time					
AC/DC Load Center Breakers					
Room Temperature					
Rodents					
Panels Labeled Properly					
Panel Lights					
Announcer Panel			NA		
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory &					
Phone Number for Phone					
Safety Equipment					

## BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Battery					
Specific Gravity in Pilot Cell					
Personal Protective Equipment			NA		
Connection Corrosion					
Leaking Cells					
Dated Solution in Eyewash Station					

## YARD &amp; FENCE

RATING: 0 1 2 3 4 (Circle One)

Fire Extinguisher Charged					
Fence Ground Connections					
Fence Secured					
Security and Emergency Lights			OK		
Site Base and Grade					
Standing Water					
Warning Signs					

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

Tein

DATE

8-21-03

**SUBSTATION**

B.E

## TRANSFORMER MAIN TANK

RATING: 0    1    2    3    4

(Circle One)

# TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: 0 1 2 3 4

(Circle One)

Tank Oil Level

三

## Drac Hand Positions

### Cabinet Light

#### Operation Count

### Tank Pressure

#### Cabinet Heater

#### Cabinet Heater

### Saline Contamination

~~ALL OK~~

GOOD CONDITION.

## ANNUAL SUBSTATION INSPECTION FORM

Inspected by \_\_\_\_\_ Date \_\_\_\_\_

Subscription

SUBSTATION INSPECTION CRITERIA	COMMENTS	Maintenance Completed	Date Item Corrected	Corrected By
		Rating Criteria		
Battery Checks - Intercell strap resistances, individual cell voltages.	Cell specific gravity			
Perform oil and DGA analysis				
Check condition of concrete pads				
Check equipment for level				
EQUIPMENT LISTING				
Transformer				
LTC or regulators				
High Voltage Breaker				
Feeder CBs / Reclosers				
Switches				
Control house battery				
Transmission line RFI				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE

**SUBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: 0 1 2 3 4

(Circle One)

## MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Jim*

=

DATE: *9/15/02*

SUBSTATION: *BE*

### HIGH & LOW VOLTAGE BUSS WORK

RATING:  1 2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	X			
Transformer Bushings	X			
Cable Terminators	X			

### MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	X			
Ground Connections	X			
Positioning and Alignment	X			
Bushings and Supports	X			

### MOTOR OPERATED SWITCHES

RATING:  1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	X			
Proper Labeling	X			
Cabinet Heater	X			
Operations Counter	X			
locking criteria	X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Jam*

DATE: 9-15-02

SUBSTATION: BE

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

	inspected <input checked="" type="checkbox"/>	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time				
AC/DC Load Center Breakers				
Room Temperature				
Rodents				
Panels Labeled Properly		NOT AVAILABLE		
Panel Lights				
Annunciator Panel				
Panel Meters				
SCADA System RTU				
SCADA Alarms				
Position Indicators Agree				
Relay Target Information				
Emergency Contact Directory				
Buttons for Phone				
Safety Equipment				

## BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels				
Proper Float Voltage on Charger & Batteries				
Specific Gravity in Plate Cell				
Personal Protective Equipment		NOT AVAILABLE		
Connection Corrosion				
Leaking Cells				
Dated Solution in Eyewash Station				

## YARD &amp; FENCE

RATING:  1 2 3 4 (Circle One)

Fire Extinguisher Charged				
Fence Ground Connections				
Fence Secured		OK		
Security and Emergency Lights				
Site Base and Grade				
Standing Water				
Warning Signs				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING:  1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	X			
Bushing and Arrestor	X			
Oil Leaks	X			
Main Tank	X			
Sample Valves	X			
Radiators	X			
Radiator Bank	X			
Tank Pressure	X			
Tank Oil Level	X			
Temperature Gauge	X			
Cooling Fans	X			

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING:  1 2 3 4

(Circle One)

Tank Oil Level	X			
Drac Hand Positions	X			
Cabinet Light	X			
Cereration Count	X			
Tank Pressure	X			
Cabinet Heater	X			
Cabinet Contamination	X			

# ANNUAL SUBSTATION INSPECTION FORM

Date \_\_\_\_\_

Inspected by \_\_\_\_\_

Substation \_\_\_\_\_

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMITMENT	MAINTENANCE COMPLETED	Date Item Corrected	
				Corrected By	
Transformer	Rating Criteria				
LTC or regulators	0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required				
High Voltage Breaker					
Feeder CBs / Reclosers					
Switches					
Control house battery					
Transmission line RFI					

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE: 9-15-02

SUBSTATION: B C

## **FEEDER CIRCUIT BREAKER / RECLOSER**

RATING:  1    2    3    4    (Circle One)

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Jim*

DATE: 10/1/02

SUBSTATION: BLACK EARTH

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4 (Circle One)

Inspected	Comments	Date Corrected	Corrected By
Clock Displays Proper Time			
AC/DC Load Center Breakers			
Room Temperature			
Rodents			
Panels Labeled Properly			
Panel Lights			
Annunciator Panel	NOT AVAILABLE		
Panel Meters			
SCADA System RTU			
SCADA Alarms			
Position Indicators Agree			
Relay Target Information			
Emergency Contact Directory			
Dialtone for Phone			
Safety Equipment			

## BATTERY

RATING: 0 1 2 3 4 (Circle One)

Liquid Levels			
Proper Float Voltage on Charger & Battery			
Specific Gravity in Float Cell			
Personal Protective Equipment	NOT AVAILABLE		
Connection Corrosion			
Leaking Cells			
Dated Solution in Eyewash Station			

## YARD & FENCE

RATING: 0 1 2 3 4 (Circle One)

Fire Extinguisher Charged			
Fence Ground Connections			
Fence Secured	OK		
Security and Emergency Lights			
Site Base and Grade			
Standing Water			
Warning Signs	NEEDS MOWING		

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *J.*

DATE: *10/1/02*

SUBSTATION: *B.E.*

## TRANSFORMER MAIN TANK

RATING: *0* 1 2 3 4

(Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings		O			
Bushing and Arrestor		O			
Oil Leaks		O			
Main Tank		O			
Sample Valves		O			
Radiators		O			
Radiator Bank		O			
Tank Pressure		O +2			
Tank Oil Level		O 30°			
Temperature Gauge		O 39°			
Cooling Fans		O ALL RUNNING			

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: *0* 1 2 3 4

(Circle One)

Tank Oil Level	X			
Drac Hand Positions	X			
Cabinet Light	X			
Operation Count	X			
Tank Pressure	X			
Cabinet Heater	X			
Cabinet Contamination	X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Jim*

DATE: *10/1/02*

SUBSTATION: *BE*

## HIGH & LOW VOLTAGE BUSS WORK

RATING:  1 2 3 4 (Circle One)

Inspected	X	Comments	Date Corrected	Corrected By
Bushing, Insulator, Arrestor, and Supports	X			
Bird Nests	X	1 OLD NEST ABOVE REBS		
Transformer Bushings	X			
Cable Terminators	X			

## MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	X			
Ground Connections	X			
Positioning and Alignment	X			
Bushings and Supports	X			

## MOTOR OPERATED SWITCHES

RATING:  1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	X			
Proper Labeling	X			
Cabinet Heater	X			
Operations Counter	X			
Locking Criteria	X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE

SUBSTA

BE

## **FEEDER CIRCUIT BREAKER / RECLOSER**

RATING: 80

1

3

(Circle One)

**DATA**

CORRECTED  
BY

# ANNUAL SUBSTATION INSPECTION FORM

EQUIPMENT LISTING	INSPECTION CRITERIA	COMMENTS	SUBSTATION	Inspected by	Date
Transformer					
LTC or regulators					
High Voltage Breaker					
Feeder CBs / Reclosers					
Switches					
Control house battery					
Transmission line RFI					
<b>Maintenance Completed</b> Date Item Corrected Corrected By					

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: Jim + Rob  
 DATE: 12/5/02  
 SUBSTATION: Black Earth

HIGH & LOW VOLTAGE BUSS WORK		RATING: 0 1 2 3 4 (Circle One)
Inspected	Comments	Date Corrected
Bushing; Insulator, Arrestor, and Supports	X Notes in wood structure	
Bird Nests	X	
Transformer Bushings	X	
Cable Terminators	X	
MANUAL SWITCHES		RATING: 0 1 2 3 4 (Circle One)
Properly Labeled	X	
Ground Connections	X	
Positioning and Alignment	X	
Bushings and Supports	X	
MOTOR OPERATED SWITCHES <i>Joint none</i>		RATING: 0 1 2 3 4 (Circle One)
OPEN/CLOSED Indicator	X	
Proper Labeling	X	
Cabinet Heater	X/N	
Operations Counter	X	
locking criteria	X	

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4

(Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time					
AC/DC Load Center Breakers					
Room Temperature					
Rodents			N/A		
Panels Labeled Properly			N/A		
Panel Lights			N/A		
Announcer Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory &					
Dialtone for Phone					
Safety Equipment					

## BATTERY

RATING: 0 1 2 3 4

(Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Battery					
Specific Gravity in Pilot Cell			N/A		
Personal Protective Equipment			N/A		
Connection Corrosion			N/A		
Leaking Cells					
Dated Solution in Eyewash Station					

## YARD &amp; FENCE

RATING: 0 1 2 3 4

(Circle One)

Fire Extinguisher Charged		N/A			
Fence Ground Connections		X			
Fence Secured		X	N/A Secure		
Security and Emergency Lights		N/A	Gravel		
Site Base and Grade		X	Gravel Cleaned up		
Standing Water		X			
Warning Signs		X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING: 0 1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	X			
Bushing and Arrestor	X			
Oil Leaks	X			
Main Tank	X			
Sample Valves	X			
Radiators	X			
Radiator Bank	X			
Tank Pressure	X			
Tank Oil Level	X			
Temperature Gauge	X	20°C		
Cooling Fans	X	turned off		

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING: 0 1 2 3 4

(Circle One)

Tank Oil Level	X		
Drac Hand Positions	X		
Cabinet Light	P/A		
Operation Count	X		
Tank Pressure	X		
Cabinet Heater	P/A		
Cabinet Contamination	X		

# MONTHLY SUBSTATION INSPECTION FORM

SPECTED BY:

ATE

**SUBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSER**

RATING: 0  1 2 3 4 (Circle One)

## ANNUAL SUBSTATION INSPECTION FORM

Date 12/5/02 Inspected by Fred & Jim Substation Block 8

SUBSTATION INSPECTION CRITERIA	EQUIPMENT LISTING	COMMENTS	Maintenance Completed	Date Item Corrected	Corrected By
			Rating Criteria	0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required	
	Transformer	C	refurbished in 7/02	7/02	Allianz
	LTC or regulators	O	refurbished in 9/02	9/02	Allianz
	High Voltage Breaker	O	O.K.		
	Feeder CBs / Reclosers	O	2 1 2 older equipment work O.K.		
	Switches	-	-	O.K. old equipment some stick	
	Control house battery				
	Transmission line RFI				

## MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *Rod + Jim*

DATE: *11/02*

SUBSTATION: *Black Earth*

### HIGH & LOW VOLTAGE BUSS WORK

RATING: 0  2 3 4 (Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Bushing; Insulator, Arrestor, and Supports	X	holes in wood structure		
Bird Nests	X			
Transformer Bushings	X			
Cable Terminators	X			

### MANUAL SWITCHES

RATING:  1 2 3 4 (Circle One)

Properly Labeled	X			
Ground Connections	X			
Positioning and Alignment	X			
Bushings and Supports	X			

### MOTOR OPERATED SWITCHES *don't have*

RATING:  1 2 3 4 (Circle One)

OPEN/CLOSED Indicator	X			
Proper Labeling	X			
Cabinet Heater	N/A			
Operations Counter	X			
locking criteria	X			

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## CONTROL HOUSE/MISCELLANEOUS

RATING: 0 1 2 3 4

(Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Clock Displays Proper Time					
AC/DC Load Center Breakers					
Room Temperature					
Rodents					
Panels Labeled Properly		N/A			
Panel Lights					
Announcer Panel					
Panel Meters					
SCADA System RTU					
SCADA Alarms					
Position Indicators Agree					
Relay Target Information					
Emergency Contact Directory &					
Phone Number for Phone					
Safety Equipment					

## BATTERY

RATING: 0 1 2 3 4

(Circle One)

Liquid Levels					
Proper Float Voltage on Charger & Battery					
Specific Gravity in Float Cell					
Personal Protective Equipment		N/A			
Connection Corrosion					
Leaking Cells					
Dated Solution in Eyewash Station					

## YARD &amp; FENCE

RATING: 0 1 2 3 4

(Circle One)

Fire Extinguisher Charged		N/A			
Fence Ground Connections	X		Needs more		
Fence Secured	X		Gravel		
Security and Emergency Lights	N/A				
Site Base and Grade	X				
Standing Water	X				
Warning Signs	X				

# MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY:

DATE:

SUBSTATION:

## TRANSFORMER MAIN TANK

RATING:  1    2    3    4

(Circle One)

	inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings		X			
Bushing and Arrestor		X			
Oil Leaks		X			
Main Tank		X			
Sample Valves		X			
Radiators		X			
Radiator Bank		X			
Tank Pressure		X			
Tank Oil Level		X			
Temperature Gauge		X	30°C		
Cooling Fans		X	off		

## TRANSFORMER LTC or VOLTAGE REGULATORS

RATING:  1    2    3    4

(Circle One)

Tank Oil Level		X			
Drac Hand Positions		X			
Cabinet Light		N/A			
Operation Count		X			
Tank Pressure		X			
Cabinet Heater		N/A			
Cabinet Contamination		X			

## **MONTHLY SUBSTATION INSPECTION FORM**

INSPECTED BY:

DATE:

**SUBSTATION:**

**FEEDER CIRCUIT BREAKER /  
RECLOSÉR**

RATING: 0  2 3 4 (Circle One)

## ANNUAL SUBSTATION INSPECTION FORM

Date

Unpublished by

Substitution

EQUIPMENT LISTING	SUBSTATION INSPECTION CRITERIA	COMMENTS	Maintenance Completed	
			Corrected By	Date Item Corrected
Transformer	Nameplate legible			
LTC or regulators	Equipment paint condition			
High Voltage Breaker	Procedure certification labels			
Feeder CBs / Reclosers	IR / RFI scans and checks			
Switches	Rating Criteria	<ul style="list-style-type: none"> <li>0) Good Condition</li> <li>1) Good Condition but aging</li> <li>2) Non-critical Maintenance Required</li> <li>3) Priority Maintenance Required</li> <li>4) Urgent Maintenance Required</li> </ul>		
Control house battery				
Transmission line				
RFI				

## MONTHLY SUBSTATION INSPECTION FORM

INSPECTED BY: *JM*

DATE: *5-3-01*

MAY OF 2001

SUBSTATION: *BLACK EARTH SUB*

### TRANSFORMER MAIN TANK

RATING:  1 2 3 4

(Circle One)

inspected	X	COMMENTS	DATE CORRECTED	CORRECTED BY
Oil in Bushings	X	WESTINGHOUSE 5000 KVA		
Bushing and Arrestor	X			
Oil Leaks	X			
Main Tank	X			
Sample Valves	X			
Radiators	X			
Radiator Bank	X			
Tank Pressure	X	AT 2#		
Tank Oil Level	X	OK AT 75%		
Temperature Gauge	X	O.K AT 40°		
Cooling Fans	X	N.A.		

OIL IN GALS AT 1348

13871 TOTAL WEIGHT

2.23% IMP.

### TRANSFORMER LTC or VOLTAGE REGULATORS

RATING:  1 2 3 4

(Circle One)

Tank Oil Level	X			
Drag Hand Positions	X	NO 1-2 AT LOWER 6 RAISE		
Cabinet Light	X			
Operation Count	X	① 58832 ② 48285 ③ 64163	3.1 AMP 3.3 AMP 3.3 AMP	
Tank Pressure	X	N.A.		
Cabinet Heater	X	N.A.		
Cabinet Contamination	X	N.A.		

NOTE.

ARRESTOR IN S.W. CORNER OF  
STRUCTURE BLOWN ON 3Ø CIRCUIT

## **ANNUAL SUBSTATION INSPECTION FORM**

Date 5-3-01 Inspected by Tim Substation BLACK EARTH